

Remarks:

This amendment is submitted in an earnest effort to advance this case to issue without delay.

The claims have been reworked and resubmitted. New claim 62 does not recite "without substantial pretreatment" but no uses the words of the specification and states "without precrystallization or predrying." Thus there is no new-matter problem with the new claims.

The instant invention is aimed at a process of using recycled PET. Normally this material must be expensively pretreated for such use, and the treatments are not always effective, but the complex method of this invention allows such pretreatment to be avoided.

The product produced by the claimed method of new claim 63 is novel for several reasons:

1. The starting material is not precrystallized or predried.
2. This starting material is plastified in an twin-screw extruder whose screw flights are only filled partially, namely 25% to 60%, while it is degassed.

3. A chain-lengthening substance is added to the PET in the extruder, thereby increasing its strength and elasticity.
4. Since the starting material - waste PET - is invariably of varying composition, the plastified stream is passed through a filter and its pressure is measured upstream and downstream so that the feed rate of the starting material and/or the rotation rate of the extruder screws can be varied to compensate for an extra-dirty or extra-clean starting material.
5. The filtered stream is then pumped through an extruder head to generate a strip.
6. This strip is then cooled with a fluid, twice stretched, and fixed to form the desired packaging web.

The claims stand rejected under §103 on a total of eleven references, of which at least five are used for any single claim. The amended claims avoid these combinations as follows.

US 6,409,949 of Tanaka relates to the extrusion of PE or PET, with degassing in an extruder. Here a chain lengthener is described, but beyond that principal features of new claim 63 are not shown or suggested.

US 2002/0100995 of Bandera relates to the extrusion of recycled and virgin PET. The material is plastified and degassed in a twin-screw extruder. There is nothing in Bandera to suggest making a strip usable as packaging web. In addition virtually none of the critical third through ninth steps of new claim 63 are disclosed. This reference is very basic.

US 6,589,463 of Vogt does actually deal with longitudinal stretching of a PET film. Otherwise nothing in claim 63 is disclosed.

US 4,849,113 of Hills, describes a filter having two parallel strip filters that are each traversed by a hot polymer stream. pressure sensors are provided upstream and downstream of the filters to detect blockages. When one of the filters is determined to be blocked, flow through it is reduced to let the filter pull off a downstream support so that a new strip of filter material can be moved into position. There is nothing resembling backflushing; indeed this system is complexly built to make such backflushing unnecessary. This reference also does not mention a packaging web or a chain lengthener. Instead Hills relates to the manufacture of pellets where flexibility and strength are largely irrelevant. Nothing here suggests partly filling the flights of an extruder screw.

US 6,153,093 of Bentivoglio, US 4,849,113 of Hills, and the Rosato literature reference all do not relate to the manufacture of packaging material from recycled PET. Instead they relate generally to extrusion and filtering of polymers. They are nothing other than background for the instant invention.

The invention as now claimed is clearly allowable over the cited art.

If only minor problems that could be corrected by means of a telephone conference stand in the way of allowance of this case, the examiner is invited to call the undersigned to make the necessary corrections.

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